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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/567,006
Filing Date: January 31, 2006
Appellant(s): LI ET AL.

Kevin J. Nilsen
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on August 17, 2010 appealing from the Office action mailed on February 18, 2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1-9 and 11-19 are pending. Claims 6, 7, 11 and 13-17 have been withdrawn.

Claims 1-5, 8, 9, 12, 18, and 19 have been rejected and are being appealed.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

Art Unit: 3748

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

7,189,375	MOLINIER ET AL.	3-2007
5,198,007	MOYER ET AL.	3-1993

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

- 1. Claims 1-5, 8, 9, 12, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Molinier et al. (U.S. Patent 7,189,375) in view of Moyer et al. (U.S. Patent 5,198,007).**

Art Unit: 3748

Re claims 1 and 8, as shown Figures 3-4, Molinier et al. disclose an improved Diesel exhaust filter (10) comprising a rigid porous wall (12), the porous wall having a first side (inlet channel side) and a second side (outlet channel side), the filter having three layers, the first layer being adjacent the first side of the rigid porous wall, the first layer comprising a Diesel oxidation catalyst (22), the third layer being adjacent the second side of the rigid porous wall, the third layer comprising a three way catalyst (a catalytic metal component of a NO_x adsorber composition (24) is deposited on a washcoat (lines 29-31 of column 8)), the second layer (trapping materials) being between the first layer and the third layer, the second layer comprising a NO_x absorbent (alkali metal or alkaline earth metal (line 65 of column 7 to line 6 of column 8)).

Molinier et al., however, fail to disclose that the ceramic in rigid porous wall is acicular.

As shown in Figure 1, Moyer et al. disclose a particulate filter (10) adapted for removing contaminants from a fluid and for use as a carrier of catalysts. As indicated in the Abstract and lines 49-55 of column 2, Moyer et al. teach that it is conventional in the art to form such particulate filter that includes a fused single crystal acicular ceramic support having a discriminating layer thereon, wherein the filter has a network of interlocked needles or platelets which has high mechanical strength, high impact strength, heat resistance, and good resistance to thermal cycling. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the particulate filter taught by Moyer et al. in Molinier et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to have a filter element having high mechanical strength and good resistance to thermal cycling that is suitable for use in an exhaust gas after-treatment system.

Art Unit: 3748

Re claims 2, 4, and 9, in the modified exhaust filter of Molinier et al., the NOx absorbent is comprised of a barium salt, barium oxide, or combination thereof (line 2 of column 8), and the acicular ceramic is comprised of acicular mullite.

Re claim 12, in the modified filter of Molinier et al., the Diesel oxidation catalyst is comprised of alumina particles impregnated and coated with platinum (lines 36-43 of column 9).

Re claim 18, in the modified filter of Molinier et al., since Molinier et al. utilize an impregnation technique to apply the oxidation catalyst, three-way catalyst, and the NOx absorbent onto the porous wall of their particulate filter, the NOx absorber is entirely within the porous filter wall.

Re claim 19, in the modified filter of Molinier et al., each of the catalyst layers are within the porous filter wall (see above).

Re claim 3, the modified filter of Molinier et al. discloses the invention as cited above, however, fails to disclose that the NOx absorbent is present in the from 40 grams/liter to 570 grams/liter of the filter.

With regard to applicants claim directed to a specified range of NOx absorbent material in the filter, the specification of such would have been an obvious matter of design choice well within the level of ordinary skill in the art depending on design variables, such as a fuel type, size of the filter, operational temperature range of the filter, ranges of engine speeds and loads, etc. Moreover, there is nothing in the record which establishes that the specification of such presents a novel or unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

Art Unit: 3748

Re claim 5, the modified filter of Molinier et al. further comprises a three way catalyst layer (a catalytic metal component of a NO_x adsorber composition (24) deposited on a washcoat (lines 29-31 of column 8)) within the porous rigid wall, the third catalyst layer being between the second side and NO_x absorbent layer.

(10) Response to Argument

ISSUE 1: Claim 6.

The argument with respect to an alleged rejection of claim 6 on page 7 of the Appeal Brief is moot because claim 6 and its dependent claims 7, 11, and 13-17 have been withdrawn from further consideration by the examiner as being drawn to a non-elected invention.

ISSUE 2: With regard to the 35 U.S.C. 103 rejections of independent claim 1, the rejections are improper because the references fail to disclose or teach all of the features and limitations as claimed.

In response to the Appellant's argument that Molinier et al. or Moyer et al. fail to teach or suggest a filter having a diesel oxidation catalyst layer and a NO_x absorbent layer within an acicular ceramic porous wall of a filter (pages 6-7 of the Appeal Brief), the examiner respectfully disagrees.

As shown Figure 4, Molinier et al. disclose a diesel exhaust filter (10) comprising a rigid porous wall (12), the porous wall having a first side (inlet channel side) and a second side (outlet channel side), the porous wall having therein a Diesel oxidation catalyst layer (22) and a NO_x absorbent layer (24), wherein the Diesel oxidation catalyst layer (22) is adjacent to the first side

Art Unit: 3748

of the porous wall and the NO_x absorbent layer (24) is between the Diesel oxidation layer and second side of the porous wall.

The text on lines 46-54 of column 10 in Molinier et al. reads as follows:

“Disposed on and/or throughout the filter elements (12) is the soot oxidation catalyst material (22) (e.g., the alkali metal aluminate and the alkali metal catalytic metal oxide). The catalyst material (22) can be coated, imbibed, impregnated, physisorbed, chemisorbed, precipitated, or otherwise applied to the filter elements (12). Application of the catalyst material (22) to the filter element (12) can be accomplished by such techniques as spraying, dipping, or painting, for example.” (emphasis added by Examiner)

Thus, based on the above disclosure, Molinier et al. impregnate a diesel oxidation catalyst material (22) into the filter porous wall (12) such that the diesel oxidation catalyst material forms a layer throughout or within the porous wall (emphasis added). The examiner then utilizes the reference of Moyer et al. to teach that the use of an acicular ceramic in the porous wall of Molinier et al. would yield a filter having high mechanical strength and good resistance to thermal cycling, that is suitable for use in an exhaust gas after-treatment system. Hence, a combination of Molinier et al. and Moyer et al. clearly teaches or suggests a filter having a diesel oxidation catalyst layer disposed within an acicular ceramic porous wall of the filter.

The text on lines 8-16 of column 7 in Molinier et al. reads as follows:

“The NO_x adsorber composition (24) preferably comprises a washcoat comprising a porous support, a catalytic metal component, and one or more NO_x trapping materials (such as alkali metals, alkaline earth metals, and the like, and combinations comprising at least one of the foregoing) disposed thereon. The catalytic metal component and NO_x trapping materials can be

Art Unit: 3748

impregnated, loaded, imbibed, coated, or otherwise disposed on and/or within the porous support.” (emphasis added by examiner)

Based on the above disclosure, Molinier et al. impregnate a NOx trapping material into the filter porous wall (12) such that the NOx trapping material forms a layer (24) within the porous wall (emphasis added). Thus, the combination of Molinier et al. and Moyer et al. clearly teaches or suggests a filter having a NOx absorbent layer disposed within an acicular ceramic porous wall of the filter.

ISSUE 3: With regard to the 35 U.S.C. 103 rejections of independent claim 8, the rejections are improper because the references fail to disclose or teach all of the features and limitations as claimed.

In response to the Appellant’s argument that since Molinier et al. only disclose a filter having two catalyst layers (i.e., a Diesel oxidation catalyst (22) and a NOx absorbent layer (24)), a combination of Molinier et al. or Moyer et al. fails to teach or suggest a filter having three catalyst layers disposed within an acicular ceramic porous wall of a filter (pages 4-5 of the Appeal Brief), the examiner again respectfully disagrees.

As shown Figure 4, Molinier et al. disclose a diesel exhaust filter (10) comprising a rigid porous wall (12), the porous wall having a first side (inlet channel side) and a second side (outlet channel side), the porous wall having therein a Diesel oxidation catalyst layer (22) and a third layer (24), wherein the Diesel oxidation catalyst layer (22) is adjacent to the first side of the porous wall and the NOx absorbent layer (24) is between the Diesel oxidation layer and second side of the porous wall. As indicated on lines 21-37 of column 8, the materials in the third layer

Art Unit: 3748

comprise a catalytic metal component and trapping materials. The catalytic metal component in Molinier et al. is platinum which has a three-way function (i.e., oxidizing HC and CO and reducing NO_x at stoichiometric air-fuel ratio) (see lines 36-43 of column 9). Thus, the catalytic metal component in Molinier et al. is indeed a three-way catalyst as claimed.

The text on lines 29-36 of column 8 in Molinier et al. reads as follows:

“The catalytic metal component and trapping materials can then be deposited on or within the washcoat by any suitable manner, such as by impregnation techniques. For example, the catalytic metal component and trapping materials, individually or together, can be dissolved as soluble precursors (e.g., as a salt like potassium nitrate) in an aqueous or organic solvent, which is then impregnated into the porous support.” (emphasis added by examiner).

Based on the above disclosure, since the trapping materials (i.e., NO_x absorbent materials) in Molinier et al. are impregnated into the porous wall at a different time from that of the three-way catalyst, there are two distinct layers on the second side (outlet channel side) of the filter – a NO_x absorbent layer and a three-way catalyst layer. And since Moyer et al. teach the use of an acicular ceramic in the porous wall of Molinier et al., a combination of Molinier et al. and Moyer et al. clearly teaches or suggests a filter having three catalyst layers disposed within an acicular ceramic porous wall of a filter.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

Art Unit: 3748

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Tu M. Nguyen/

Tu M. Nguyen

Primary Examiner

tmn

November 19, 2010

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